31 GIORNATE CARDIOLOGICHE TORINESI

TURIN
October
24th-26th
2019

A patient with migraine, positive MR and PFO: what to do?

"The Solution"

Ovidio De Filippo
AOU Città della Salute e della Scienza di Torino

To summarize:

- Woman, 50 years old with multi - infarct encephalopathy (and pre-existing migraine)
- No evident causes of left circulation thromboembolism
- Low probability of parossistic atrial fibrillation
- Patent foramen ovale with mostly latent right-left shunt
- (no anatomical risk features)

1) Which is the probability that PFO has a relevant role in this observed clinical picture ?

2) Which is the likelihood that the observed event will recur ?

WHICH CHOICE HAS THE HIGHEST BENEFIT-RISK RATIO FOR THIS PATIENT?

Which is the probability that PFO has a relevant role in this observed clinical picture ?

- As in most cases the role of PFO remains elusive

Patient characteristics:

Rope Score : 5 (0-10)

Table 4 RoPE score calculator

Characteristic	Points	RoPE score
No history of hypertension	1	
No history of diabetes	1	
No history of stroke or TIA	1	
Nonsmoker	1	
Cortical infarct on imaging	1	
Age, y		
18-29	5	
30-39	4	
40-49	3	
50-59	2	
60-69	1	
≥70	0	
Total score (sum of individual points)		
Maximum score (a patient <30 y with no hypertension, no diabetes, no history of stroke or TIA, nonsmoker, and cortical infarct)		10
Minimum score (a patient ≥70 y with hypertension, diabetes, prior stroke, current smoker, and no cortical infarct)		0

Neurology. 2013;81:619–25

Which is the probability that PFO has a relevant role in this observed clinical picture ?

CHARACTERISTICS of PFO

High risk PFO ?

- Atrial septal aneurism
- Moderate to severe shunt
- PFO size > 2 mm
- Atrial septal hypermobility

IMAGING STROKE PATTERNS

Examining the Lacunar Hypothesis With Diffusion and Perfusion Magnetic Resonance Imaging

Richard P. Gerraty, MD, FRACP; Mark W. Parsons, FRACP; P. Alan Barber, PhD, FRACP; David G. Darby, PhD, FRACP; Patricia M. Desmond, MSc, FRACR; Brian M. Tress, MD, FRACR; Stephen M. Davis, MD, FRACP

Conclusion—DWI and PWI altered the final diagnosis of infarct pathogenesis from small perforating artery occlusion to large artery embolism in 13 of 19 patients presenting with lacunar syndromes. Lacunes cannot be reliably diagnosed on clinical grounds. **(*Stroke*. 2002;33:2019-2024.)**

Lesion patterns in patients with cryptogenic stroke with and without right-to-left-shunt

R. Feurer[a], S. Sadikovic[a], L. Esposito[a], J. Schwarze[b], A. Bockelbrink[c], B. Hemmer[a], D. Sander[a] and H. Poppert[a]

[a]*Department of Neurology, Technische Universitaet Muenchen, Klinikum Rechts der Isar, Muenchen, Germany;* [b]*Department of Neurology, Klinikum Chemnitz, Chemnitz, Germany; and* [c]*Department of Social Medicine, Epidemiology and Health Economics, Charité, University Medicine Berlin, Berlin, Germany*

Conclusion: We found no association between an ischaemic lesion pattern that is considered as being typical for stroke due to cardiac embolism and the existence of PFO. Therefore, our findings do not provide any support for the common theory of paradoxical embolism as a major cause of stroke in PFO carriers.

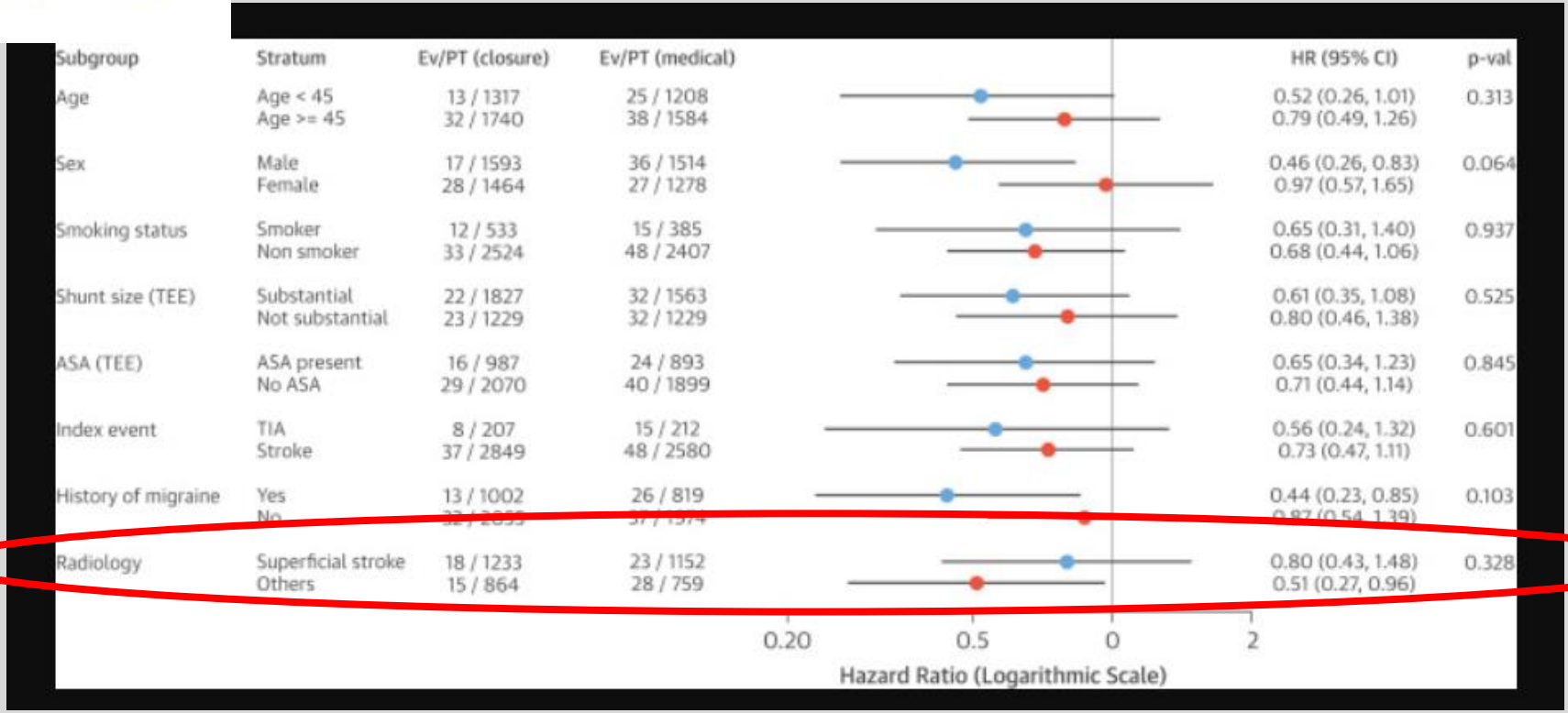
Device Closure of Patent Foramen Ovale After Stroke

Pooled Analysis of Completed Randomized Trials

David M. Kent, MD,[a,b] Issa J. Dahabreh, MD,[a,c,d,e] Robin Ruthazer, MPH,[a] Anthony J. Furlan, MD,[f] Mark Reisman, MD,[g] John D. Carroll, MD,[h] Jeffrey L. Saver, MD,[i] Richard W. Smalling, MD, PhD,[j] Peter Jüni, MD,[k,l] Heinrich P. Mattle, MD,[m] Bernhard Meier, MD,[n] David E. Thaler, MD[b]

J Am Coll Cardiol. 2016 Mar 1;67(8):907-17. doi: 10.1016/j.jacc.2015.12.023

Subgroup	Stratum	Ev/PT (closure)	Ev/PT (medical)	HR (95% CI)	p-val
Age	Age < 45	13 / 1317	25 / 1208	0.52 (0.26, 1.01)	0.313
	Age >= 45	32 / 1740	38 / 1584	0.79 (0.49, 1.26)	
Sex	Male	17 / 1593	36 / 1514	0.46 (0.26, 0.83)	0.064
	Female	28 / 1464	27 / 1278	0.97 (0.57, 1.65)	
Smoking status	Smoker	12 / 533	15 / 385	0.65 (0.31, 1.40)	0.937
	Non smoker	33 / 2524	48 / 2407	0.68 (0.44, 1.06)	
Shunt size (TEE)	Substantial	22 / 1827	32 / 1563	0.61 (0.35, 1.08)	0.525
	Not substantial	23 / 1229	32 / 1229	0.80 (0.46, 1.38)	
ASA (TEE)	ASA present	16 / 987	24 / 893	0.65 (0.34, 1.23)	0.845
	No ASA	29 / 2070	40 / 1899	0.71 (0.44, 1.14)	
Index event	TIA	8 / 207	15 / 212	0.56 (0.24, 1.32)	0.601
	Stroke	37 / 2849	48 / 2580	0.73 (0.47, 1.11)	
History of migraine	Yes	13 / 1002	26 / 819	0.44 (0.23, 0.85)	0.103
	No	[illegible]	[illegible]	[illegible]	
Radiology	Superficial stroke	18 / 1233	23 / 1152	0.80 (0.43, 1.48)	0.328
	Others	15 / 864	28 / 759	0.51 (0.27, 0.96)	



Which is the likelihood that the observed event will recur ?

European Heart Journal (2016) **37**, 2029–2036
doi:10.1093/eurheartj/ehw027

FASTTRACK CLINICAL RESEARCH
Disease management

Percutaneous closure of patent foramen ovale in migraine with aura, a randomized controlled trial

Heinrich P. Mattle[1*†], Stefan Evers[2†], David Hildick-Smith[3], Werner J. Becker[4], Helmut Baumgartner[2], Jeremy Chataway[5], Marek Gawel[6], Hartmut Göbel[7], Axel Heinze[7], Eric Horlick[8], Iqbal Malik[5], Simon Ray[9], Adam Zermansky[10], Oliver Findling[1], Stephan Windecker[11], and Bernhard Meier[11]

Table

Table 2 **Primary endpoint, change in migraine with and without aura days, and secondary endpoints, change in migraine attacks with aura or without aura, and change of days with acute migraine medication use**

Type of endpoint	Randomization assignment	Number	Mean at baseline	Mean at months 10–12	Mean reduction, [95% CI][a]	SD (min., max.)	*P*-Value
Migraine with and without aura days (= primary endpoint)	PFO closure	40	8.0	5.1	−2.9 [−4.4, −1.4]	4.7 (−11.7, 9)	0.1682
	Control	41	8.3	6.5	−1.7 [−2.5, −1.0]	2.4 (−6.3, 3.5)	
Migraine attacks with or without aura[b]	PFO closure	40	5.2	3.1	−2.1 [−2.8, −1.3]	2.4 (−7.8, 2.00)	0.0970
	Control	41	5.3	4.0	−1.3 [−1.8, −0.8]	1.7 (−5.0, 1.7)	
Days with acute migraine medication use	PFO closure	50	29.4	15.6	−13.9 [−19.1, −8.7]	18.3 (−70.0, 24.0)	0.1232
	Control	52	28.1	19.8	−8.3 ± [−13.3, −3.4]	17.8 (−51.0, 42)	

PFO, patent foramen ovale; Max, maximum; Min, minimum; CI, confidence interval; SD, standard deviation

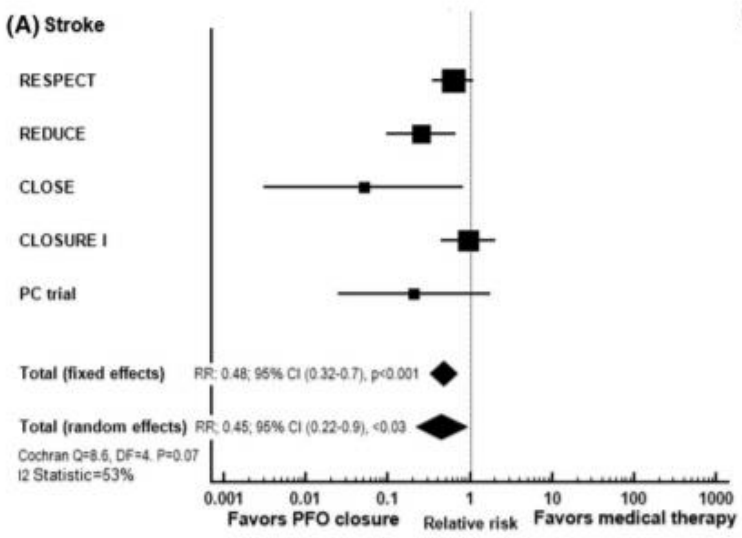
Statistical Analyses*	
ce Between Implant ıam Arms (95% CI)	*P*
6% (−6.45–6.34)	1.0
.45 (−0.16–1.05)	0.14
…	…
1 (−11–10)	0.88
…	…
1 (−5–6)	0.79
…	…
0 (−3–2)	0.77
…	…

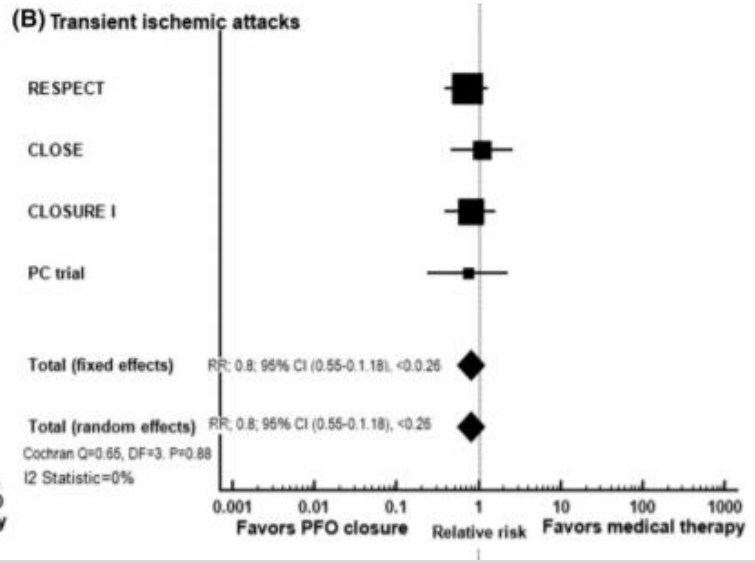
Which is the likelihood that the observed event will recur ?

Patent foramen ovale closure versus medical therapy in cases with cryptogenic stroke, meta-analysis of randomized controlled trials

Elsayed Abo-salem[1] · Bernard Chaitman[1] · Tarek Helmy[1] · Eric Adjei Boakye[2] · Hassan Alkhawam[1] · Michael Lim[1]

Received: 18 December 2017 / Revised: 10 January 2018 / Accepted: 11 January 2018 / Published online: 22 January 2018





The risk of in the incidence of stroke among the PFO closure group compared to medical therapy group, 2.0 %versus 4.2%. There was no signifcant difference between both groups in the incidence of transient ischemic attacks or all-cause deaths.

Which is the likelihood that the observed event will recur ?

The NEW ENGLAND JOURNAL of MEDICINE

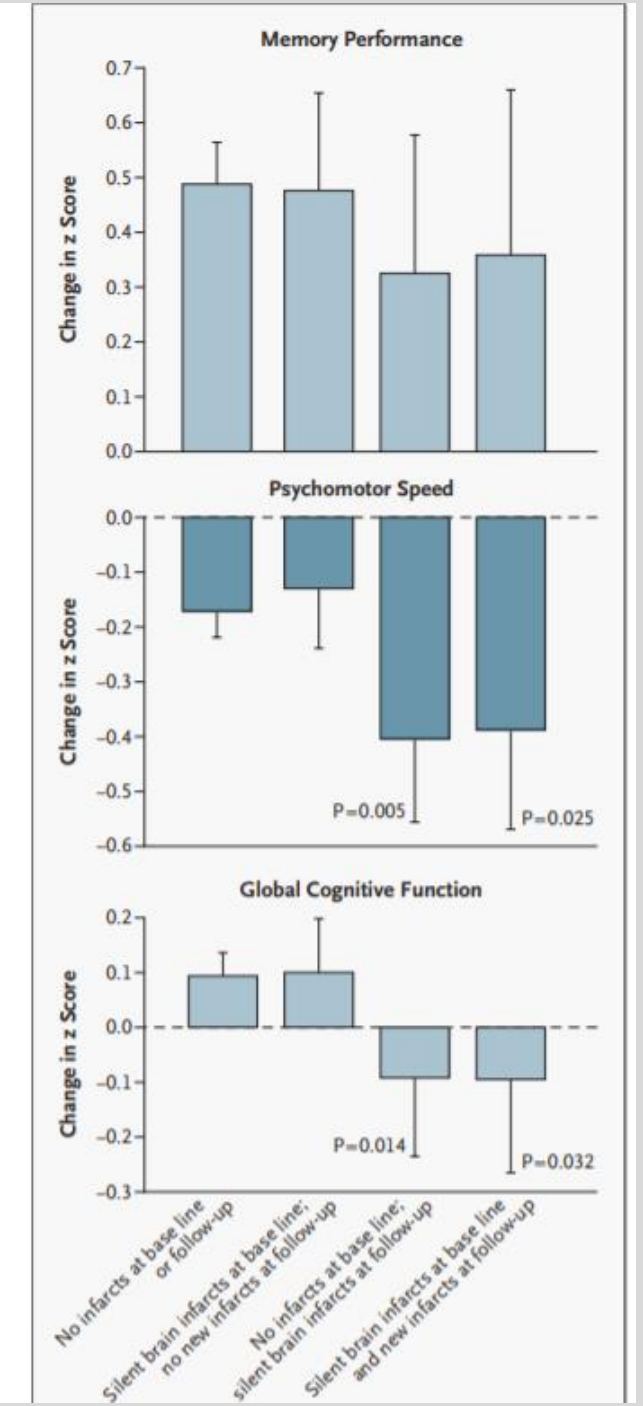
ORIGINAL ARTICLE

Silent Brain Infarcts and the Risk of Dementia and Cognitive Decline

Sarah E. Vermeer, M.D., Ph.D., Niels D. Prins, M.D., Tom den Heijer, M.D., Albert Hofman, M.D., Ph.D., Peter J. Koudstaal, M.D., Ph.D., and Monique M.B. Breteler, M.D., Ph.D.

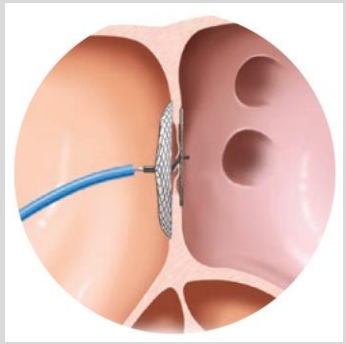
Table 3. Association between the Presence of Silent Brain Infarcts on Magnetic Resonance Imaging in 1995–1996 and Subsequent Cognitive Decline.*

Variable	Silent Brain Infarcts		
	All	Thalamic	Nonthalamic
	decline in z score (95% CI)		
Memory performance	−0.01 (−0.16 to 0.15)	−0.50 (−0.87 to −0.13)	0.06 (−0.10 to 0.23)
Psychomotor speed	−0.19 (−0.34 to −0.04)	−0.11 (−0.36 to 0.13)	−0.20 (−0.36 to −0.05)
Global cognitive function	−0.15 (−0.27 to −0.02)	−0.28 (−0.50 to −0.06)	−0.13 (−0.26 to 0.001)



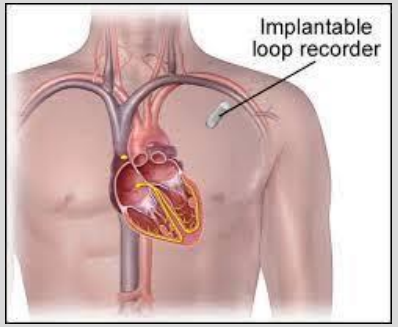
WHICH CHOICE HAS THE HIGHEST BENEFIT-RISK RATIO FOR THIS PATIENT?

PFO Occlusion



Medical Therapy

Watchful waiting

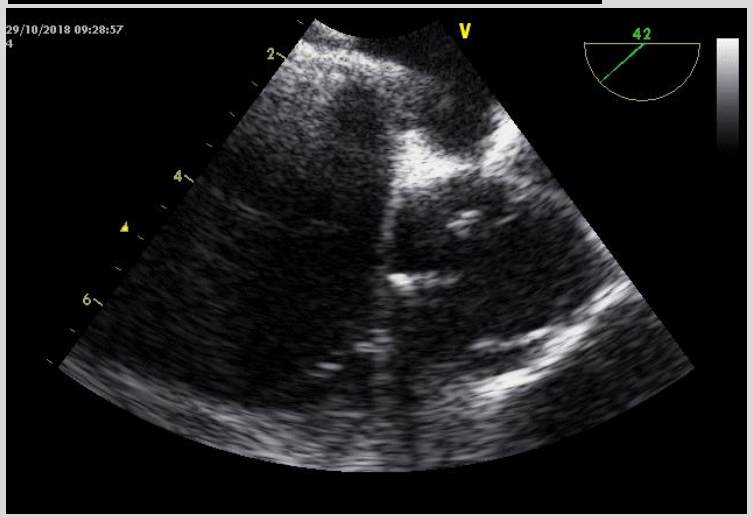


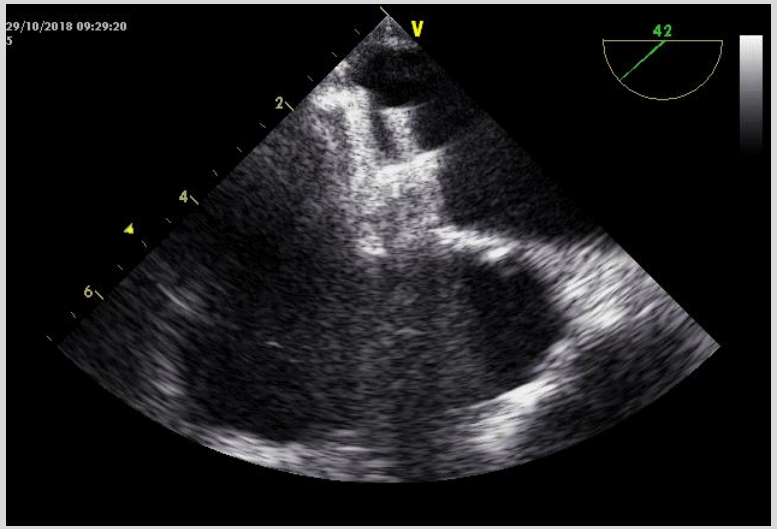
+

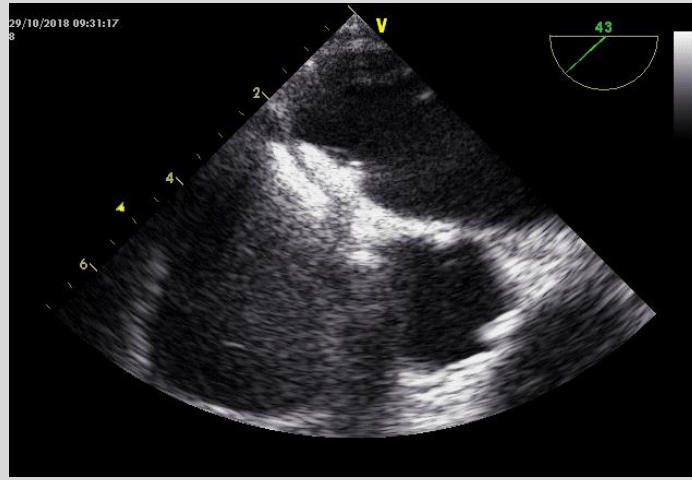
[redacted]

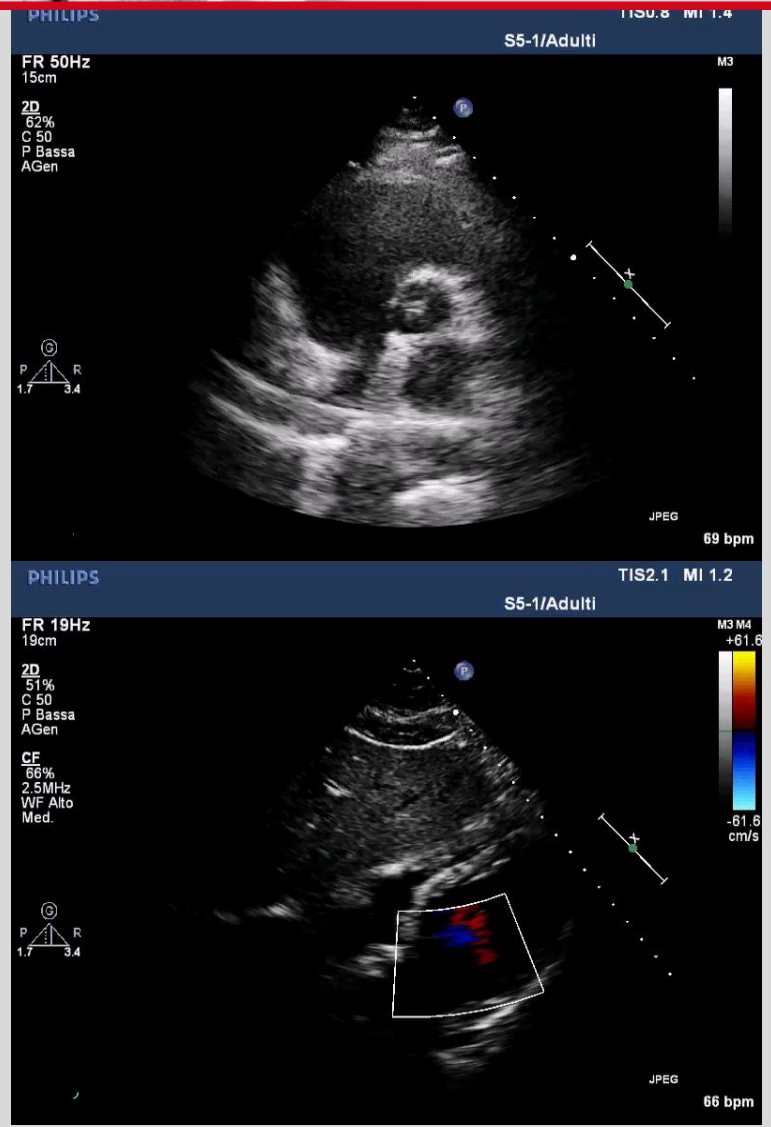
[redacted]

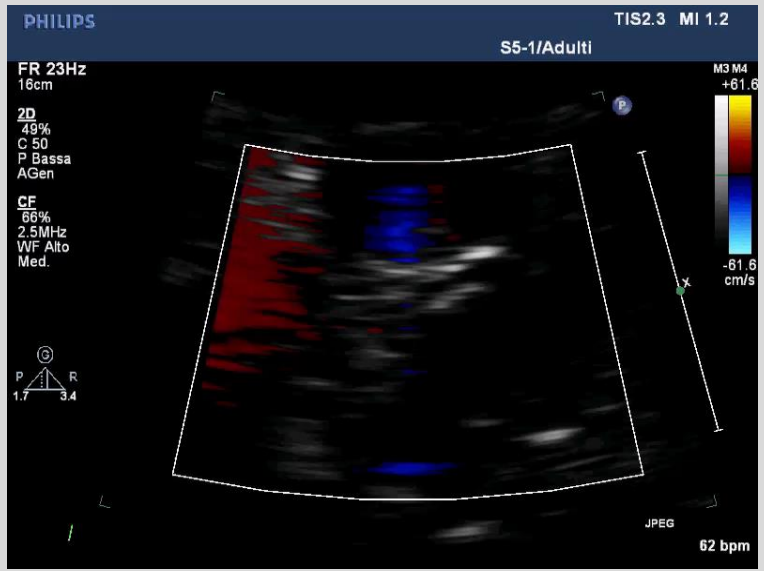
- Clopidogrel 300 mg pre-operatively
- Femoral right vein access
- Midazolam 6,25 mg ev
- Cefazolin 1 gr ev (at 4 h and 8 h)











Patient was discharged the day after:

- ASA long-lfe
- Clopidogrel 75 mg for three months
- Recommendation for endocarditis prophylaxis

Planned Follow up:

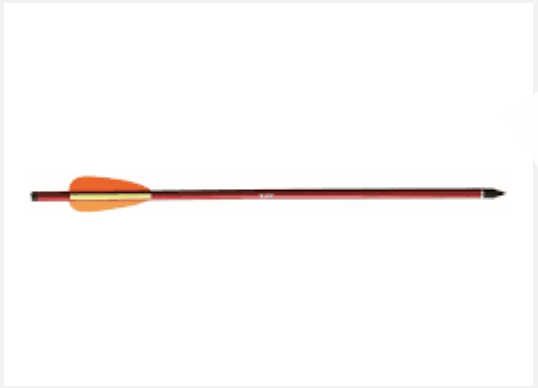
- TT echo at 1 month
- TT echo + TCD at 6 months
- TT echo at 12 months

ONE YEAR FOLLOW-UP

Patients feels well

No long-term side effects related to procedure or device

Brain



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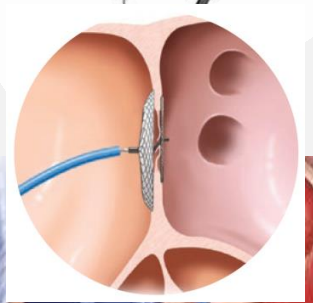
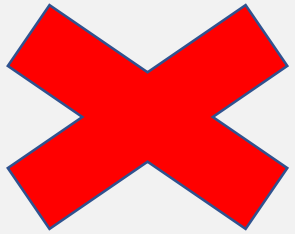



Right
atrium



Woman

50 years old

Cardiovascular risk factors : Hypertension + Dyslipidemia

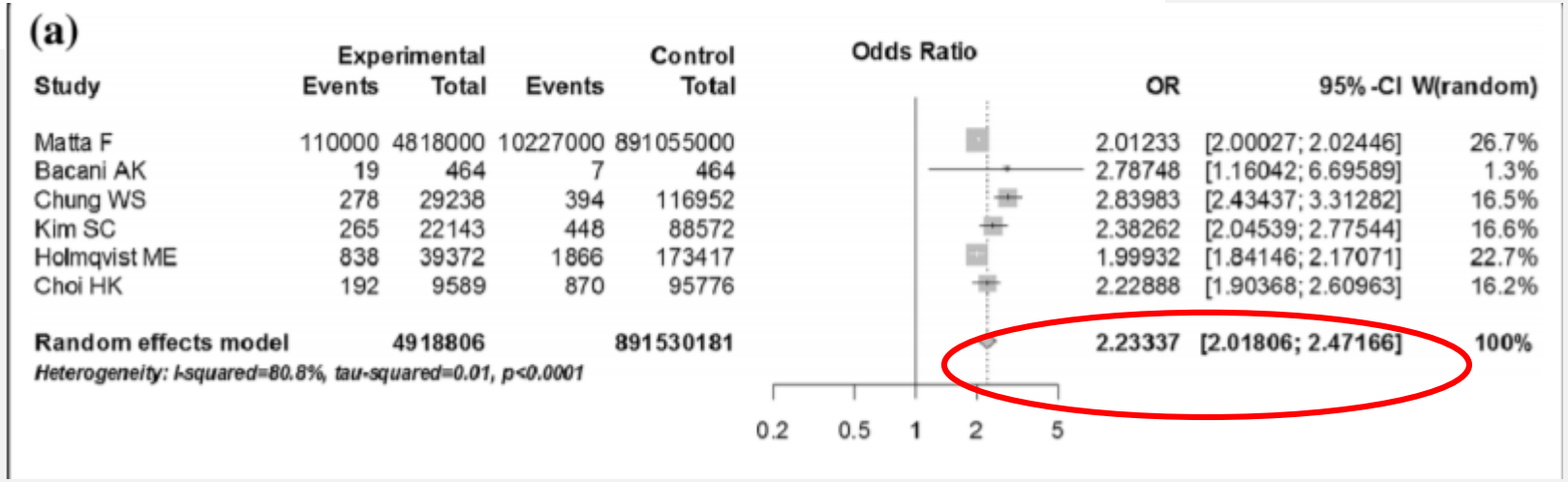
General anamnesis: rheumatoid arthritis, hypothyroidism, **migraine without aura since 20 years old,** previous minor surgery, contraceptive spiral with hormonal release

Any remarkable cardiological anamnesis

RESEARCH ARTICLE Open Access

A meta-analysis of the risk of venous thromboembolism in inflammatory rheumatic diseases

Jason J Lee[1] and Janet E Pope[1,2*]



Studies that included rheumatoid arthritis comprised an aggregate of 5,273,942 patients and 891,530,181 controls with a cumulative VTE incidence of 2.18% (95% confidence interval (CI): 1.82% to 2.54%) and an ***odds ratio of 2.23 (95% CI: 2.02 to 2.47) compared to age- and sex-matched populations***

Woman

50 years old

Cardiovascular risk factors : Hypertension + Dyslipidemia

General anamnesis: rheumatoid arthritis, hypothyroidism, **migraine without aura since 20 years old,** previous minor surgery, contraceptive spiral with hormonal release

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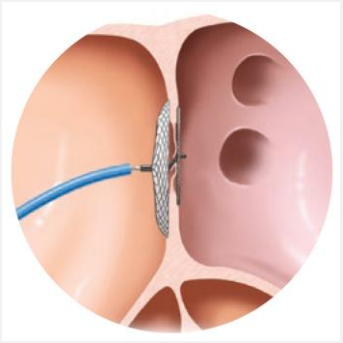

Medical Therapy

JAMA Neurology | Original Investigation

Association Between Low-Dose Rivaroxaban With or Without Aspirin and Ischemic Stroke Subtypes

A Secondary Analysis of the COMPASS Trial

Kanjana S. Perera, MBBS; Kelvin K. H. Ng, MBBS; Sumiti Nayar, MD; Luciana Catanese, MD; Leanne Dyal, MSc; Mukul Sharma, MD, MSc; Stuart J. Connolly, MD; Salim Yusuf, MBBS; Jackie Bosch, PhD; John W. Eikelboom, MD; Robert G. Hart, MD

Watchful waiting

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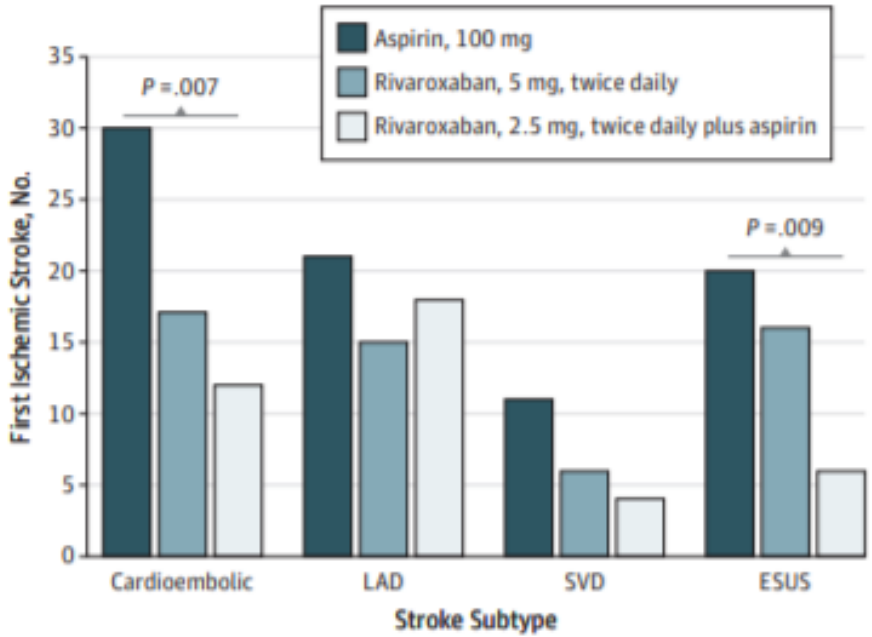
For patients with systemic atherosclerosis, low-dose rivaroxaban plus aspirin was associated with large, significant reductions in cardioembolic strokes and embolic strokes of undetermined source



ESUS indicates embolic stroke of undetermined source; LAD, large artery disease; and SVD, small vessel disease.

There were significantly fewer cardioembolic strokes (hazard ratio [HR], 0.40 [95% CI, 0.20-0.78]; P = .005) and embolic strokes of undetermined source (HR, 0.30 [95% CI, 0.12-0.74]; P = .006) in the combination therapy group compared with the aspirin-only group

THANK YOU FOR YOUR ATTENTION !

È meglio un gatto tra due topi, che un malato tra due medici

We don't have enough evidence, we trust our experience